

# A BARBELL WEIGHT PLATE

## Field of the Invention

This invention relates to a weight plate for use in physical exercise involving barbell curl bars.

## Background of the Invention

Physical exercise involving the lifting of barbell and dumbbells to maintain muscle tone, physical fitness, or for bodybuilding requires the use of weights. The weights generally consist of plates having a circular configuration with a central opening for mounting the weight plate onto a curl bar. The plates are of various weight magnitudes to permit the amount of weight to be lifted to be adjusted in accordance with the exercise routine of the user. In some instances, such as in the case of some dumbbells, the plate and curl bar are integral. In the case of barbells, there are some designs where the weight and bar are integral. Typically, however, the weights are carried between end cap weights which lock the weights to the curl bar to prevent the weights from falling from the bar during the exercise. Thus, in the case of removable plates, if the user intends to either increase or decrease the amount of weight to be lifted, the user must undo the end cap or lock and remove the end cap from the curl bar to permit the additional weight to be mounted adjacent to the plates already in place on the bar. Since the weight is equally distributed at the opposite ends of the curl bar, the user, in order to modify the amount of weight to be lifted, must remove both end caps, slide an existing pair of weights from the bar, or slide new weights onto both ends of the bar followed by capping the ends of the bar.

It would be desirable to have weight plates which can be easily removed or added to the weightlifting curl bar without having to remove a weight lock or end cap; and subsequently, add or remove additional weights at each end of the bar. It is therefore an object of this invention to provide weight plates of various configurations that are easily mounted to and removed from the weightlifting curl bar to eliminate the necessity of having to remove an end lock or end cap and then remove or add a weight plate to the curl bar.

1 Summary of the Invention

2       There is, therefore, provided according to the present invention, a weight plate having a  
3 circular or polygon configuration that is composed of two bodies which are hinged to each other  
4 to permit the weight to be opened and closed for removable mounting to the weightlifting curl  
5 bar.

6       The present invention is directed to a weight plate for barbell or dumbbell use with  
7 weightlifting curl bars that consists of two bodies which are hinged together so that the bodies  
8 may be closed together or separated. A latch member is carried by one body and associated  
9 with the two bodies to close the bodies together or to separate them. When the latch member is  
10 in the closed position, the two bodies that are locked together may have a circular or polygon  
11 configuration with an opening preferably at the mass center of the two bodies when latched  
12 together; the opening permits the two bodies to be removably mounted to the weightlifting curl  
13 bar without having to slide the bar through the weight plate.

14       In one configuration of the invention, the two bodies when locked together have a  
15 circular configuration with a circular opening at the center. The opening at the center has a  
16 sufficient radius dimension such that upon closing the two bodies and latching them together, the  
17 weight plate will compressively engage the weightlifting curl bar. The opening may also have a  
18 regular polygon configuration having an apothem of sufficient dimension to permit the opening  
19 to compressively engage the weightlifting curl bar uniformly about its circumference.

20       In one embodiment, the two bodies are hingedly connected to close together or separate  
21 where a latch means is associated with the two bodies to selectively lock or unlock the two  
22 bodies. When the two bodies are locked together, the two bodies have a common opening  
23 extending through the two bodies preferably at their combined mass center; the center opening  
24 created by the latching of the bodies permits the two bodies to be removably mounted to a  
25 weightlifting curl bar. The center opening may be of a circular shape or of a regular polygon  
26 shape. When the center opening is of a regular polygon shape, the polygon apothem is of  
27 sufficient dimension to permit the opening to bear compressively against the weightlifting curl  
28 bar when the bar is enclosed by the two bodies.

29       In yet another embodiment of this invention, the two bodies are again hingedly connected  
30 to close together or to separate. As in other embodiments, a latch is associated with both bodies

1 to lock and unlock the bodies together. In this embodiment, when the two bodies are locked  
2 together, the bodies have a triangular configuration with an opening extending through the two  
3 bodies preferably at the mass center thereof to permit the two bodies to be removably mounted to  
4 the weightlifting curl bar. The opening preferably may have a circular configuration with a  
5 radius of sufficient dimension to compressively bear against the bar and enclose the weightlifting  
6 curl bar; or the opening may be of a regular polygon configuration having an apothem of  
7 sufficient dimension to permit the opening to enclose the weightlifting curl bar and  
8 compressively bear uniformly against the bar.

1 Brief Description of the Drawings

2           These and other features and advantages will become appreciated as the same became  
3 better understood with reference to the following specification, claims and drawings wherein:

4           FIG. 1 is a perspective view of the barbell weight of this invention having a circular  
5 configuration in the opened position.

6           FIG. 2 is a perspective view of the barbell weight of this invention in a circular  
7 configuration and in a closed position.

8           FIG. 3 is a top view of the closed circular configuration shown in Fig. 2.

9           FIG. 4 is a left side elevational view of Fig. 3.

10          FIG. 5 is a right side elevational view of Fig. 3.

11          FIG. 6 is a top view of Fig. 3.

12          FIG. 7 is a bottom view of Fig. 3.

13          FIG. 8 is a perspective view of the barbell weight of this invention having a polygon  
14 configuration in the opened position.

15          FIG. 9 is a perspective view of the barbell weight of this invention in a polygon  
16 configuration and in a closed position.

17          FIG. 10 is a top view of the closed polygon configuration shown in Fig. 9.

18          FIG. 11 is a left side elevational view of Fig. 10.

19          FIG. 12 is a right side elevational view of Fig. 10.

20          FIG. 13 is a top view of Fig. 10.

21          FIG. 14 is a bottom view of Fig. 10.

22          FIG. 15 is a perspective view of the barbell weight of this invention having a triangular  
23 configuration in the opened position.

24          FIG. 16 is a perspective view of the barbell weight of this invention in a triangular  
25 configuration and in a closed position.

26          FIG. 17 is a top view of the closed triangular configuration shown in Fig. 16.

27          FIG. 18 is a left side elevational view of Fig. 17.

28          FIG. 19 is a right side elevational view of Fig. 17.

29          FIG. 20 is a top view of Fig. 17.

30          FIG. 21 is a bottom view of Fig. 17.

## Detailed Description

Fig. 1 is a perspective view of the preferred embodiment of this invention. Fig. 1 illustrates the barbell weight plate 1 of this invention in an opened position. Weight plate 1 has a circular configuration and is composed of a first body 2 and a second body 3. First body 2 and second body 3 are hinged together by pivot pin 4. As can be seen in Fig. 1, barbell weight plate 1 is bisected by the plane containing central axis 6. The plane containing central axis 6 is substantially orthogonal to upper surface 7 of first body 2 and upper surface 8 of second body 3 and bisects barbell weight plate 1 substantially along a diameter such that both bodies may be described as having a diametric boundary surface 9 and 11, respectively. As can further be seen in Fig. 1, first body 2 has a semi-circular boundary peripheral surface 12 that completes the peripheral boundary and second body 3 has a semi-circular peripheral boundary surface 13 that with diametric boundary 11 forms the peripheral boundary of second body 3.

Referring again to Fig. 1, it can be seen that first body 2 carries a latch member 14 that has a handle 16 on one end and a shoulder latch 17 at the opposite end. Latch member 14 and shoulder member 16 are integral and are so mounted to permit latch member 14 to pivot upon a compressive force being applied to handle 16 in a direction radially inward toward the center of barbell weight plate 1. A coil spring 10, which can be seen in Figs. 4 and 5, biases latch member 14 such that handle 16 may only be depressed radially inward thereby rotating shoulder latch 17 outwardly in a radial direction. To provide for a smooth peripheral boundary surface, slot 18 is so dimensioned and proportioned to permit latch member 14 to be carried with the outer radial surface of latch member 14 and handle 16 substantially flush with the semi-circle peripheral boundary surface of first body 2; second body 3 has a slot 19 that is so dimensioned and proportioned to permit latch member 14 to extend into slot 19 upon closing first body 2 and second body 3 together. First body 2 and second body 3 are locked together upon shoulder latch 17 gripping latch pin 21.

Fig. 2 illustrates barbell weight plate 1 in the closed and locked position. As can be seen in the perspective view shown in Fig. 2, barbell weight plate 1 has an opening 22 that is circular and extends axially through barbell weight plate 1. Opening 22 is a cylindrical void having as an axis central axis 6. Although the curl bar is not shown in the drawings, when barbell weight plate 1 is opened as shown in Fig. 1, opening 22 or the cylindrical void permits barbell weight

1 plate 1 to be attached to a curl bar and then closed without having to slide the barbell weight  
2 plate onto the curl bar. Upon first body 2 and second body 3 being closed together as illustrated  
3 in Fig. 2, latch member 14 engages pivot pin 21 thereby locking barbell weight plate 1 to the curl  
4 bar.

5 Referring now to Figs. 3, 4, 5, 6 and 7, it can be seen that Fig. 3 is a top view of Fig. 2  
6 and that the latch handle 16 and latch member 14 are flush with peripheral boundary surface 12  
7 of first body 2 and peripheral boundary surface 13 of second body 3. Although opening (or  
8 circular cylindrical void) 22 is shown to be of a cylindrical shape, opening 22 may also have a  
9 polygon shape where the apothem of the polygon is of a sufficient dimension to permit opening  
10 22 to receive and compressively engage the curl bar when closed.

11 Another embodiment of this invention that is directed toward the configuration of the  
12 weight plate is shown in Fig. 8 where barbell weight plate 100 has a regular polygon shape. As  
13 in the preferred embodiment, barbell weight plate 100 is composed of a first body 102 and a  
14 second body 103 which are hinged together by pivot pin 104 to permit first body 102 and second  
15 body 103 to separate or to be closed. A central axis 106 extends through the center of the regular  
16 polygon shape and is contained in the plane that bisects barbell weight plate 100 along the radius  
17 of the regular polygon. First body 102 has a planer boundary surface 109 along the polygon  
18 radius and the remainder of the boundary surface encloses the semi-polygon 112. Likewise,  
19 second body 103 has a planer boundary surface 111. When first body 102 and second body 103  
20 are in the closed position as shown in Fig. 9, planer boundary surface 109 and planer boundary  
21 surface 111 are tangent surfaces substantially contained in the plane bisecting the radius of the  
22 polygon and containing central axis 106.

23 As above stated in the description of the preferred embodiment of this invention, the  
24 polygon shaped embodiment contains latch member 114 for opening and locking first body 102  
25 and second body 103 together. Latch member 114 has a handle 116 and a shoulder latch 117 and  
26 is biased by coil spring 110. Slot 118 permits latch member 114 and handle 116 to be mounted  
27 such that when the barbell weight plate is in the closed position, the latch member 114 is flush  
28 with the surface that is boundary surface 112 of first body 102. As can be seen in Fig. 8, second  
29 body 103 has a latch pin 121 for engaging shoulder latch 117 of latch member 114. Slot 119 is  
30 so dimensioned and proportioned that when first body 102 and second body 103 are closed

1 together, the portion of latch member 114 extending into slot 119 is flush with boundary surface  
2 113 of second body 103. The flush relationship between latch member 114, handle 116, and  
3 boundary surfaces 112 and 113 is more clearly shown in Figs. 9, 11 and 12. Latch member 114  
4 is biased by coil spring 110 as shown in Figs. 11 and 12. By compressing handle 116 inwardly  
5 the opposite end of latch member 114 containing shoulder latch 117 rotates radially outwardly  
6 from the center of the polygon to unlatch from shoulder latch 121 thereby permitting first body  
7 102 and second body 103 to open and rotate relative to each other about pivot pin 104.

8 By referring to Fig. 9 as in the preferred embodiment, it can be seen that barbell weight  
9 plate 100 has an opening 122 that extends through the weight plate; opening 122 is a cylindrical  
10 void having a center coincident with central axis 106 that extends through the barbell weight  
11 plate. As can be seen in Fig. 8 in the open position, opening 122 is semi-circular void contained  
12 in first body 102 and in second body 103 such that upon closing the first and second bodies into  
13 a locked position, opening 122 has a standard diameter that is substantially the same diameter as  
14 the curl bar.

15 Fig. 10 is a top view of Figs. 8 and 9 and illustrates first body 102 and second body 103  
16 locked together. To unlock and separate first and second bodies, handle 116 is radially  
17 depressed inwardly against the bias of coil spring 110 causing shoulder latch 117 to rotate  
18 radially outward thereby releasing shoulder latch 117 from latch pin 121; the bias exerted against  
19 latch member 114 by coil spring 110 returns the handle 116 to a flush relationship with the  
20 boundary surface.

21 Although opening 122 is shown to be that of a right circular cylinder having a center  
22 coincident with central axis 106, opening 122 may also be of a polygon shape where the apothem  
23 of the polygon is of sufficient dimension to permit the opening to compressively engage the curl  
24 bar when first body 102 and second body 103 are locked together.

25 Another embodiment that is directed toward the configuration of the barbell weight plate  
26 of this invention is shown in Figs. 15 – 20. In this embodiment, the barbell weight plate 200 has  
27 an equilateral triangle configuration with a central axis 206 located at the center of the triangle;  
28 i.e., the intersection of the apothems as can be seen in Fig. 15. The first body 202 is hinged by  
29 hinge pin 204 to second body 203 to permit first body 202 and second body 203 to be separated  
30 or to be closed by rotating the bodies relative to each other. Central axis 206 is contained in the

1 plane that bisects barbell weight plate 200 defining a planer surface 211 that is tangent to planer  
2 surface 209 where both surfaces are tangent to each other when first body 202 and second body  
3 203 are closed together. As can be seen in Figs. 15 and 16, hinge pin 204 is located near the  
4 apex of the angle opposite the side of the triangle containing latch member 214 and latch pin  
5 221. As can further be seen in Figs. 15 and 16, peripheral boundary surface 212 of first body  
6 202 contains slot 218 that is so dimensioned and proportioned to permit the radial boundary  
7 surface of latch member 214 and handle 216 to be flush with surface 212. Figs. 18 and 19,  
8 which are left and right side elevational views of Fig. 17, illustrate the flush relationship of latch  
9 member 214 and handle 216 with boundary surface 212.

10 Barbell weight plate 200 has an opening 222 which is a cylindrical void having a central  
11 axis 206 that is coincident with the center of the equilateral triangle, i.e., at the intersections of  
12 the apothems of the sides of the triangle. As in the other embodiments described above, the  
13 triangular configuration utilizes a coil spring 210 to bias latch member 214. By depressing  
14 handle 216 radially inward, latch shoulder 217 moves radially outwardly. In the closed position  
15 of the first body 202 and second body 203, latch shoulder 217 is latched to latch pin 221;  
16 depressing handle 216 unlatches latch shoulder 217 and permits the two hinged bodies to be  
17 rotated relative to each other and removed from a curl bar. The opening 222, as in the  
18 embodiments described above, may also be of a regular polygon shape where the apothem of the  
19 polygon is approximately the same as the radius of the curl bar. In all of the above  
20 embodiments, the barbell weight plate may be made of either metal, rubber, rubber encased,  
21 urethane, iron, or steel or combinations of the foregoing. Thus, when first body 202 and second  
22 body 203 are closed and latch shoulder 217 is in engagement with latch pin 221, opening 222  
23 compressively engages the curl bar (not shown) sufficiently to prevent the barbell weight from  
24 sliding off the curl bar.

25 While I have shown and described embodiments of a construction member for a magnetic  
26 construction toy, it is to be understood that the invention is subject to many modifications  
27 without departing from the scope and spirit of the claims as recited herein.